

AVIATION

The Oldest American Aeronautical Magazine

AUGUST 8, 1927

Issued Weekly

PRICE 15 CENTS



The PN-10 Navy seaplane in which Lieutenant Connell established 12 new records

VOLUME
XXIII

SPECIAL FEATURES

NUMBER
6

TRANSPORTATION ACCIDENTS
NAVY PILOT SETS TWELVE NEW RECORDS
CONSTRUCTION OF THE NEW YORK TO ROME FOKKER

AVIATION PUBLISHING CORPORATION

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UTMOST dependability under the most severe conditions — excess power and stamina for every emergency — these have always been Packard's.

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450 H. P.
Front view as given



612 H. P.
Front view as given

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Some Notable Lorraine-Dietrich Performances

1925

34,000 miles in 360 hours of flight — Rene-MacBourne-Tokis-Reno, achieved by Colonel De Perdre in a S. A. V. O. I. A. flying boat with 600 H. P. engine.

New York-Buenos Aires, by Douglas, Obere and Compagnoni, in a S. A. V. O. I. A. flying boat, with a 550 H. P. engine.

1926

Wick's altitude record of 39,200 feet, by Collins, flying a Blériot-Spad, with 450 H. P. engine.

2,900 miles in 3 days, by Amhurst and Carol, (Circuit des Capriles), in a Potez XXV, with 624 H. P. engine.

5,500 miles in 6 days, 18 hours, Fois-Peking by Pelletier-Ducry and Carol in a Regent with 630 H. P. engine.

4,500 miles in 9 days, (3 stops) Tokyo-Copenhagen by Capelle. Borel flying a Fokker with 450 H. P. engine.

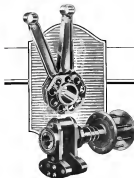
4,000 miles in 42 hours 45 minutes, total time, Paris-Buenos-Yours-Casablanca-Paris by Pelletier-Ducry and Capelle in a Potez 25 with 450 H. P. engine.

1927

15,000 miles in flying boat across Africa by Capelle de Carville Gaudard and mechinisme Roper.

Crossing South Atlantic, from Belém to São Francisco de Nacarra, 1600 miles in a non-stop night flight of 17 hours, 30 minutes by Major Sacramento de Barros.

SOCIÉTÉ LORRAINE-DIETRICH
ARGENTEUIL (Seine-et-Oise) FRANCE



Wasp & Hornet Leadership

One piece Master Connecting Rod and Built-up Crankshaft

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Grouping of all accessories at the rear of the engine

Complete enclosure of all working parts

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The Wasp
425 H.P.
at 1900 R.P.M.
Weight 680 lbs.

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525 H.P.
at 1900 R.P.M.
Weight 750 lbs.

This unique design feature has been developed and proved by Pratt & Whitney engines. It has made possible the successful operation of high powered radial engines at high crank speeds.

The direct result has been an entirely new application of radial air cooled powerplants, — The Wasp in the agile and two-place fighting planes, and the Hornet in the heavy weight-carrying types.

This basic feature of both the Wasp and the Hornet has materially influenced all modern air cooled engine design.



THE PRATT & WHITNEY AIRCRAFT CO.
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DEPENDABLE ENGINES



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And suppose you went to Ten WACO owners. And suppose each of these men advised you to buy a WACO. You would certainly feel, and with good reason, that the WACO was outstandingly the best Airplane obtainable for your particular use.

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Pilot-Instructor Turns to the Institute for Further Study

YOU men who are in Aviation will be interested in Mr. Casanova's letter—and in his point of view. It is worded. He is sure to ask to "be in a better position to impart information to others, while instructing them in flying."

It is always the men who seek to improve. They are the men who get ahead—who rise above the crowd, in more ways than one.

The Aviation Institute course of instruction is so close, so simple that any man of average intelligence, who starts before his peers, may study in Aviation, can master it easily at home, in his spare time. Yet it is so thorough in everything that a man needs to know of the fundamentals and principles of this great, new, growing industrial field that even experts turn to it for further study, to advantage.

There is a great similarity between the present status of the Aviation industry and what the automobile business was in its early stages. Aviation is taking the whole world by storm. It is expanding rapidly, in every direction. Notably in no commercial direction. Hundreds of great, new factories will be made. You will see men apparently get rich over night.

But Aviation is suffering from drawing pins. Its opportunities, its possibilities are too many, too large to be met by the few trained men we have in the business. Everywhere leaders are hungry for men who know.

Most of these factories that are to be so beautifully grained will go to the men who get trained now—or broken their present knowledge. Success will come to the first. The places will be seized by men who know how to take them.

You ambitious men who are now in Aviation—pilot, plane, commercial flier, instructor—you inspectors, riggers, mechanics—look into what the Institute can do to help you. Investigate the course. Send the coupon for literature and prospectus. Read your audience with the lead of real that outsiders cannot perceive—the fact that is expert knowledge in every scale of your business.

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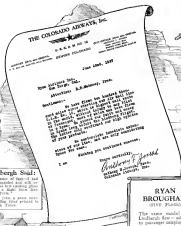
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Only EFFICIENCY
and DEPENDABILITY
Bring Statements
Like these!



Lindbergh Said:

"I am a master of flight and will I succeed and will I fail in the first attempt, I will make a flight from New York to Paris."

Question from a press man: "What of this first attempt to fly from New York to Paris?"

RYAN BROUGHAM (VICE PRESIDENT)

The same model that Lindbergh flew—adapted to passenger carrying.
Type: Wright Whirlwind JTC
Wing: 40 ft.
F.O.S. 100 mph
Superior School

OWNERS of RYAN AIRLINES
San Diego, California

Announcing Another Pitcairn Success



PITCAIRN MAILWING

HIGH performance, maneuverability, ease of maintenance and low cost of operation are the features incorporated in the design and construction of the Pitcairn Mailwing—a plane produced especially for commercial contract air mail operation.

The fuselage is constructed along the well-known Pitcairn practice of welded steel tubing of square section.

The wing section employed is a special development of our Engineering

Division, giving wide speed range with a high load factor.

Equipped with the Wright Whirlwind J5C six-cylinder engine of 225 horsepower, the Mailwing has a maximum speed of 136 m. p. h. with an economical cruising speed around 100 m. p. h. Notwithstanding its high speed the Mailwing loads at 45 m. p. h.

The mail and express load carried, for a cruising radius of 600 miles, is 800 lbs. in a compartment of 26 cu. ft.

The Pitcairn Mailwing has just returned from successful participation in the National Air Race, and we welcome your inspection of the plane either at our factory or the flying field.

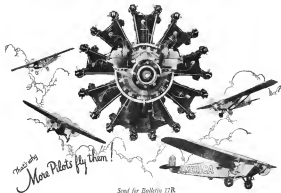
PITCAIRN AIRCRAFT, INC.
LAND TITLE BUILDING PHILADELPHIA

CONSISTENCY!

The Lindbergh, Chamberlin, Maitland and Byrd flights had one common factor—the Wright Whirlwind Engine.

The consistent selection of this engine by these world-famous fliers—as well as by many others whose page in history is not yet written—is equalled only by the flawless operation of the engine, whose uniform performance had played a major part in these epochal events.

This choice was not haphazard. It was logically based upon the actual performance of the engine itself. Its record of over 4,635,000 miles flown during 1926, in civil and military service, is alone sufficient to justify universal confidence.



Send for Bulletin 17R

WRIGHT

AERONAUTICAL CORPORATION

Paterson, N. J., U. S. A.



Vol. XXIII

AUGUST 8, 1927

No. 6

New Markets for New Types

AT THE present time there seem to be three principal types of planes which are being manufactured commercially and on a production basis in this country. One is the three place open cockpit biplane, another is the cabin plane built around the Wright Whirlwind engine, while the third plane is the large single engined mail plane. Various other types such as the three engined extra planes have been built but production on a real quantity basis has not been attained.

The main production, both in numbers of planes produced and in the number of manufacturers, lies in the three place open plane and the Whirlwind engined cabin plane, and as a result there is a large amount of competition in these fields. There are a dozen or more firms which at least have aspirations of going into production on the three place planes and half a dozen firms are building the Whirlwind cabin planes, while many others have built sample planes of these types. The three place type has been established long enough so that at least two firms have gotten onto a production basis in a small way. In the field of the cabin plane however none of the competing firms have attained a production basis which will lead them to build over one hundred planes during the course of the year.

New firms seeing the present day demand for these types decide that these are the types of planes which they desire to build. Back designers faithfully design what the other designers do, with little addition of their own which gradually produce better and better planes. In the meantime the various other types of planes have been, comparatively speaking, neglected, and the real opportunity for advancement in the aeronautical fields lies in developing of these new types of planes. There are several types such as the small sport plane, or the high performance two engine planes, or any number of flying boats, for which there undoubtedly would be a demand if the plane produced and the system of selling were good. New types of planes take a considerable length of time to develop and it takes equally long to develop the channels of distribution. However started and financed on the wrong basis there is little doubt that a new firm would be more apt to survive by bringing out a new type of plane than by entering into the fierce competition which will exist in the standard models of planes.

Step by Step

THOUGH Col. Charles A. Lindbergh, Clarence Chamberlin, Commander Berd and Lieutenant Maitland now have had different experiences during their great flights, and obtained a varying amount of

impressions, there is one point on which they all agree. That is, that such flights though they be made as a stunt, a defence experiment or in the interests of science and air transportation, parachuting and aerial preparation is not only essential but imperative if science is to be attained.

In short, the recent wholesale accomplishment of the "rapsoodies" does not mean that regular trans-oceanic aerial service is a matter of time to be made practical within a few months, or, perhaps, even years. It will come, of that there is not the slightest doubt, and it is altogether fitting that the American aeronautical world strive toward that end. But do so step by step rather than by leaps and bounds. Let it not lose hold on what it already has—the results of years of effort and sacrifice—in a wild headlong rush to obtain that which is bound to come in the due course of time.

The last six months have witnessed a series of American air performances unequalled in the history of the art. Records have been broken and broken, endurance, long distances, loading carrying, altitude, and even by the time these few lines are being read a new speed record may have been established. All of which has won the admiration and respect of the entire world, and placed American planes and American airmen at the head of the list. These they should and will remain if the advice of those who made it so needed and put into practice.

The Follow-Through

HOW LONG will it last? It is a question that is being asked in aviation circles regarding the enthusiasm of the public for flying. The great overseas flights that have come so regularly after the Lindbergh boy have served to whip the aeronautical interest of popular enthusiasm to a point of conviction. It is ready to be marshaled into any form that seems advisable. The danger is that it may cool too suddenly before it has taken a shape that will benefit aviation in the future.

The David Greengarden Fund for the Promotion of Aeronautics has with its usual good sense and judgment seen to it that Col. Lindbergh's master stroke should have an adequate "follow through". The flight to reconnect cities of the country by Colonel Lindbergh is hardly alive the interest in these epoch making flights as nothing else could. Thousands of Americans are describing the hero of the New York to Paris flight and this enthusiasm is being converted into airports. It is such practical work as this that deserves appreciation. Money alone is often a problem but funds intelligently directed and expended doable in value.

Navy Pilot Sets Twelve New Records

Speed, Duration and Distance Marks Made by Lieutenant Connell During 11 Hr. 7 Min. 18 Sec. Flight in PN-10 Navy Seaplane

LIEUT. RICHARD H. CONNELL, U. S. N., navigator of the seaplane in which the late George H. S. Pape, now deceased, and crew landed on the Pacific near Honolulu, were, recently, piloted a PN-10 into the air at San Diego, Cal., with a total gross load of nearly 11 tons and maintained flight for 11 hr. 7 min. 18 sec. while flying over a triangular course for a total distance of 947.54 mi. and established what are claimed to be 12 new records for new seaplane planes.

As yet the claims have not been fully approved by the National Aeronautics Association or the Federal Aeronautics Administration, but George H. Pape, representing these bodies, filed the flight, and in his opinion at least 12 new records were established.

The PN-10 flown by Lieutenant Connell is powered by two 400 hp. Packard engines which drive five-bladed propellers.

Preparations Made in Secret

While no advance notice was given of the flight, the idea of bringing back to the United States the seaplane marks lost to Japan from last October occurred to the pilot and his first lieutenants at San Diego several months ago. Preparations proceeded in utmost secrecy and on July 8 at 7:07:37 A. M. the big seaplane took off into the air.

Lieutenant Connell found when the plane had been loaded with 800 lb. of mail, 70 gal. of oil and 600 gal. of gasoline, with a human cargo of 500 lb., that its position nearly unimpaired. As he gave it full throttle from a point along the north shore of San Diego bay the big plane briefly plunged its way through the water.

The pilot received a "good" "Mo" and started south to smooth water with no waves facing his bow. For five miles he tided with the compass-aided flight plan, no longer able to tell at the speed achieved look the air and clouds. At the end of the five miles he looked as though the PN-10 would turn on into the Pacific, where it was hoped the first wave would send the ship into the air.

Five miles passed off without, however, even in the distance of rough water and a breeze, and the plane took up, to re-

sume aloft throughout the day. Its pay load consisted of 4400 lb. of mail. Only 4400 lb. were carried to comply with the 5000-lb. regulations, but the added weight was carried on duty in making the records.

The plane record covered the 10-mi. (approximately) course 81 times and was timed at each corner. When the flight landed it was inspected at the aerial air station and the record was accepted for checking. The logs covered an area of nearly 100 sq. mi., the heaviest load ever carried for such a distance and time.

The records established by Lieutenant Connell and his crew of two—H. S. Pape, senior pilot, member of the Commander Rodgers crew, and W. B. Goff, mechanic—are as follows:

Speed record for 1800 km. carrying a load of 2000 kg., 56.50 m.p.h.

Speed record for 1500 km. carrying a load of 2000 kg., 56.00 m.p.h.

Speed record for 1800 km. carrying a load of 2000 kg., 56.01 m.p.h.

Speed record for 1500 km. carrying a load of 2000 kg., 55.78 m.p.h.

Speed record for 1800 km. carrying a load of 2000 kg., 55.75 m.p.h.

Speed record for 1500 km. carrying a load of 2000 kg., 55.75 m.p.h.

Speed record for 1800 km. carrying a load of 2000 kg., 55.75 m.p.h.

While establishing the foregoing marks, Lieutenant Connell sought also to better the records of Alexander Foustler, Italian pilot, who covered 500 km. in five hr. and 41 sec. and a German who did his three hours and 41 sec. in the same effort brought back from Italy these records:

Duration carrying no load of 800 kg.

Duration carrying no load of 1000 kg.

Duration carrying no load of 1200 kg.

Duration with pay load of 500 kg.

Duration with pay load of 700 kg.

Duration with pay load of 900 kg.

Duration with pay load of 1100 kg.

Duration with pay load of 1300 kg.

Duration with pay load of 1500 kg.

Duration with pay load of 1700 kg.

Duration with pay load of 1900 kg.

Duration with pay load of 2100 kg.

Duration with pay load of 2300 kg.

Duration with pay load of 2500 kg.

Duration with pay load of 2700 kg.

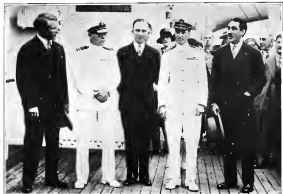
Duration with pay load of 2900 kg.

Duration with pay load of 3100 kg.

Duration with pay load of 3300 kg.

Duration with pay load of 3500 kg.

The Trans-Atlantic Airmen Return



These men aboard the S. S. Labrador of the steaming presidential cruise. Left to right: Steve Balaban, Lieut. George H. S. Pape, Richard H. Connell, and others.

Flies 10,000 Miles During Good Will Tour

During the tour when with Good Will Tours at the United States, made in an airplane by Major Herbert A. Dargatzis, Army Air Corps, and Walter O. Lechner of London, N. J., a total distance of 10,000 mi. was flown and costs were paid to 200 cities in 34 states of the Union. Dargatzis, who was killed in 1918 at the time of a crash landing in Alaska, was transferred through the entire seven weeks.

Capt. Ross D. Hoyt, Army Air Corps, is today an G-2 airplane, with Capt. D. B. Bower, mechanic, accompanied Major Dargatzis. His destination plane carried open seats which, it was believed, would be required during the course of the tour but which, as it later proved out, were not needed. The airmen carried no other valuable cargo during the flight, taking in nothing but the plane, a checkbook, a map, a compass, a sextant, etc., and, in a number of instances, first making the landing at various points to determine the suitability of the landing field for use by the airplane.

While visiting the 34 states, Major Dargatzis carried messages to the Governors General from the Honorable F. T. M. Dargatzis, Assistant Secretary of War. Congressmen were also invited to the airport and members of the Chambers of Commerce at the many that 200 cities visited. In a number of instances, messages were dropped while the plane was over cities and the airmen not only had the satisfaction of seeing the city of the airplane of some but of actually meeting them before in person in the streets or parks. The

first message dropped was while the airplane was at an altitude of about 10,000 ft. where the police officers of Havana, P. R. The message landed about a block and a half away and they saw it picked up. The last message was dropped at Richmond, Va., at the Plaza in front of the Capitol, and two men were seen to pick it up.

Junkers Three Engine Planes on 17 Lines

A recent report issued by the Junkers corporation in Germany tells of the number of its single and three engine planes used in the operating of 50 air transport lines in various parts of the world. The report states that 17 of the lines are equipped with three engine planes while the others use single engine planes.

The lines operating with three engine planes are as follows:

Germany: Berlin-Kassel-Berlin, Berlin-London, Berlin-Potsdam, Berlin-Munich, Munich-Berlin, Munich-Vienna and Berlin-Stuttgart.

Austria: Vienna-Berlin.

Poland: Warsaw-Krakow and Krakow-Vienna.

Italy: Rome-Venice.

Spain: Madrid-Lisbon-Barcelona.

Sweden: Malmo-Amsterdam, Malmo-Gothembourg and Stockholm-Stockholm.

Finland: Helsinki-Tampere-Helsinki.

Switzerland: Bern-Lucerne-St. Gallen.

On some of the above mentioned lines, single engine planes are also used.



The four members of the Pape-Hoyt expedition. Left to right: H. S. Pape, Lieut. George H. S. Pape, Richard H. Connell, and W. B. Goff.

PRACTICE WHAT YOU PREACH — USE THE AIR MAIL

NATIONAL AIR RACES SPOKANE, WASH., SEPT. 23, 24

Gave these multi-motored planes, capable of releasing their weight on less than their full horsepower developed, are used.

"The Nation" in discussing a recent address at Chautauque the New Division of the Imperial Airways claims to emphasize the factor of safety by using multi-motored planes and.

"The Airways standard of maintenance is defined the 'highest in the world.' He even explained the company's unflinching financial statement, which showed an operating loss of \$108,000, by the notion that it was a considerable part due to the company's voluntary withdrawal from areas of unmanageable expenses and their replacement by multi-engine machines, of greater power and capacity, which meant greater safety. Although the single-engine planes were in excellent condition, he said, they have been taken off in order to provide the public with a service established on the safety and reliability principle at British transport organizations."

In the new planes of operation, as shown in the tables above, there were only twenty-seven (27) machines among passengers. The development of multi-motored planes gives to commerce a still greater measure of safety and the proportion of passenger will be reduced.

The Scot regular passenger test air transportation line in the United States was operated by the Philadelphia Rapid Transit Air Service between Philadelphia, Washington and Norfolk with multi-motored Fokker planes for the duration of the Empire Exhibition, to demonstrate, they announced, "that the public will use the airplane for transportation purposes when management is able to render its confidence." In the period of their operation—less than five months—they safely carried 100,000 passengers over their route.

When we consider that in the new series of air passenger traffic in Europe only twenty-seven (27) passengers were killed on the air line reporting here, no means less in regard of the safety of air travel. Air lines, it must be remembered, do not cover any unpopulated territory, of their work being over routes necessarily distant points. Passengers must the distance for travel on these routes when no road runs over for miles behind of every day in period and on better days on some of the other routes.

With the airplanes which have been used to make these

tours being rapidly replaced with multi-engine aircraft having even greater distance of safety if it is difficult to understand why some insurance companies refuse to permit their policy holders to fly in airplanes, or, if permitting them to do so, to place them under penalty of an increased premium. These are insurance companies which have released insurance to those in the aircraft industry to have a look and make that premium that it is profitable. There is a misunderstanding which should be corrected.

Prior to January 3rd, 1927, in the United States there were airplanes flying which were not constructed according to any given standards as which were not capable of safe performance, but so that late the United States Department of Commerce, through Secretary MacCracken, announced to insure aircraft according to a standard of design and construction as laid down by the Department.

With the United States Department supervising, its regulations, the design and construction of aircraft, with the use of multi-engine aircraft in responsible operation of passenger lines with the great improvement in the reliability of engines, with facilities for expansion furnished by the government with extensive improvement in aerodynamic design, with more and better landing fields, with more developed weather reports, and transport in the United States should take a recognized place as one of the standard transportation methods—safe, reliable and economical.

German Fliers Hasten Flight Preparations

German reports state that Ernst Udet, famous war ace, and Otto Kesselbach, also an ace, are speeding up preparations for their expedition Germany to America, according to flight. Udet has announced that he will start from Munich next week, but that flight is the last of the other plane has not been made public as yet. It is being built by the Gotha Works and is almost finished and ready for tests.

Kesselbach says he will not start from Berlin, as was expected, but take to the air at Cologne. He also intends that he will have German security as to the route the United States authorities. The intention is to make a surprise flight for war of the Americas.

New Seaplane Altitude Record



Last of C. C. Chapman, 21-10-18, coming in with the ship "Husky" 1400, subject after establishing the World's highest altitude record of 21,000 ft.

PRACTICE WHAT YOU PREACH — USE THE AIR MAIL.

Aircraft Trade Notes

Record Landing Gear Tests by Photography

A novel and very effective system of recording tests at new designs has recently been put into practice at the Alexander Aircraft factory, Denver, Colo. The series of a small moving picture camera, a complete picture of the landing, test, and period at failure is made. The accompanying reproduction of a strip of film shows a test of the new split-type landing gear, which is new design and equipment on the Republic.

The first picture shows the gear landed in position for a 30 ft. drop. The next shows the left wheel just about to make contact with the ground just as the floor is hit. The next, the shock test is fully extended and the next picture shows the wheel about 220 ft. of road, representing the weight of a fully loaded airplane.

The remaining pictures show the wheel and the ground deformation. It is interesting to note that the wheel did not leave the floor at any time during the rebound, which would indicate a very smooth landing. Landing gear Actual landing tests on the field have verified this desirable characteristic.

As the reproduction shows, the landing gear withstood the 30 ft. drop without failure of any kind. During a later test the same gear withstood a 50 ft. drop and failed under a 75 ft. drop. This shows the landing gear to be about 50 per cent stronger than the Department of Commerce requirements.

Haskelite on Ocean Flight Planes

The new air records held by planes in which Haskelite plywood was used indicate the important part this product has in aircraft construction. Plywood manufactured with Haskelite glue by the Haskelite Manufacturing Corp. is used in landing gear, fuselage, wings, and other parts of the landing gear, and in part of the fuselage structure, including the floor plates in which Haskelite is used.

In the new boats, Haskelite ply is used in the hull, deck, and other parts. When the material is used in the hull, it is used in the hull, deck, and other parts. When the material is used in the hull, it is used in the hull, deck, and other parts.

The landing floors were formed from Haskelite ply, covered in the requirements of the design. The use of the material used in the fuselage, wings, and other parts of the landing gear, and in part of the fuselage structure, including the floor plates in which Haskelite is used. Part of the fuselage, wings, and other parts of the landing gear, and in part of the fuselage structure, including the floor plates in which Haskelite is used.

as the Fokker "De-Main", the type in which Lloyd and his companions made the first flight of France and to which Lloyd and Haskelite have been awarded.

Lightness, strength, and weather-proofing are advantages claimed for Haskelite. The makers state they have as developed their product that it is now being used in various types of aircraft, and is being used in various types of aircraft, and is being used in various types of aircraft.

Another Haskelite Manufacturing Co. product is made of plywood, which is used in various types of aircraft, and is being used in various types of aircraft, and is being used in various types of aircraft.

Spalding Flying Helmet and Suit

The most recent A. G. Spalding and Bros., New York City, have just made their first effort in the development of new "flying" helmets and other forms of equipment. It is the H. P. of the Aviation Department, who developed such of his equipment, has been granted a patent on an improved flying helmet, as well as a flying suit.

The Spalding helmet is similar to the one worn by the pilot Arnes helmet. It is made in three sections, with adjustable straps and buckles and two straps for holding goggles in place. Recently made air pilots are fitted so that they can be used in the air.

The oxygen helmet is of new design and built with canvas. There is a breathing tube which is connected to the helmet with a hose, and in the month for carrying the oxygen supply line. Spalding makes the new helmet is provided to make the people fit closely.

The Spalding firm also manufactures a winter flying suit. The suit is made of leather and cloth, the interior of the chest, and the lower part of the legs, and is made of the same material as the suit. It has been used in the production of the suit, and is being used in the production of the suit.

The Westinghouse Micarta Pegplate

The Westinghouse Electric and Manufacturing Co., of Pittsburgh, Pa., has been experimenting for some time with pegplates made of a material called "micarta." Originally developed as an insulator for electrical work, micarta has been used in many other ways. It has been used in the production of the suit, and is being used in the production of the suit.

about 250 of these propellers for use on service planes. The Army trans-Pacific plane and by Louisiana National and Hapgood was equipped with moiré propellers.

The basic material is moiré in specially woven active fibers which has been impregnated with plastic resin. This is done by passing the fibers through a vat of the resin and



Layers of impregnated fabric before molding into a moiré propeller.

then through a steam heated chamber. This part of the process is called the "curing stage" and must be very carefully checked as the quality of the finished product depends largely upon the accuracy with which this stage of the manufacturing is carried out.

The impregnated fabric is next cut in templates so as to form laminations which are built up, layer on layer into the exact shape and size of the finished propeller. These laminations of impregnated fabric are then thoroughly stretched and aligned by means of a vacuuming or adding layers. About 250 laminations make up one propeller.

The pile of fabric is next placed in a lathe polished to exact mold, and heated by steam after which a hard process of



A moiré propeller before being run in test.

several hundred tons is applied. The heat and pressure are kept on the mold for several hours until the laminated fabric has become a solid, coherent, continuous surface. The steam is then turned off, the mold cooled, and the propeller removed.

Small holes and "fin" along the edges, incidental to molding, are next stripped off. No finishing is necessary except for that, as the propeller is molding has been on the high speed lathe that had been given to the service of the mold in polishing it.

The propeller is moved through the saddle of the lathe making two separate blades; the hub end of each is then



Showing attachment of moiré propeller blade to the hub.

rough machined to fit a steel balancing collar and a preliminary check on balance is made. After this check the hub is finished to fit the standard steel hub and a final balance is made. Each blade is balanced separately against a standard, finally making them interchangeable. Absolute balance

must be obtained without recourse to varnishing or painting as the surface preparation is applied, the exact finish of moiré being hard enough.

At the time of balancing each blade is checked for angles, twist, width, thickness and surface defects. The blade is now a finished product.

Wear and pressure have no effect on moiré propellers and steel blades will not splinter them. Due to the nature of the fabric they are resistant and have a greater heat than metal propellers. It is stated that moiré propellers are considerably lighter in weight than those manufactured of metal, and change of temperature, which is a liability to metal propellers, has a negligible effect upon them.

Pioneer Manufacturing Navigation Lights

The Pioneer Instrument Co., of Brooklyn, N. Y., is now producing navigation lights which fulfill the requirements of the 85 "Lights", of the air commerce regulations. They include side lights designed for mounting on vertical surfaces and tail lights for mounting on a horizontal surface. When so mounted the shieldings prevent the lights to be seen only through specified angles.

These lights are substantially made, and are easy to install. The base is of cast aluminum alloy. The shell of



Navigation light manufactured by the Pioneer Instrument Co.

red, green, or clear colored, according to the position in which the light is to be mounted, is readily removable for replacement of bulbs. These lamps are standard automobile headlight bulbs, 12 volt, 35 w.p., double contact.

Navigation lights are stocked by the Pioneer Co. at Los Angeles and San Francisco, as well as at the factory in Brooklyn.

N.A.C.A. Publishes Report by Donald A. Hall

The National Advisory Committee for Aeronautics, Washington, D. C., has published Technical Note No. 257, entitled "Technical Preparation of the Airplane 'Spirit of St. Louis,'" by Donald A. Hall, chief engineer, Ryan Airplane, Inc. The report serves to detail the engineering problems encountered and their solution in the construction of Colonel Lindbergh's trans-Atlantic plane. It fully illustrated with many photographs of the plane under construction and in flight. A set of curves on the performance and fuel consumption is also included.

Technical Note No. 257 may be obtained upon request from the National Advisory Committee for Aeronautics, Washington, D. C.



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THE convenient and efficient unit hull and body of the Loening Amphibian, has brought with it a new disposition of fin areas. This has resulted in manoeuvrability and control forces quite different from the ordinary airplane.

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LOENING AERONAUTICAL ENGINEERING CORPORATION

31st STREET AND EAST RIVER, NEW YORK CITY

FOREIGN AERONAUTICAL NEWS NOTES

By Special Arrangement with the Automotive and Transportation Division,
Bureau of Foreign and Domestic Commerce

South African Air Mail Service

An airmail service between Johannesburg and Durban, South Africa, will be inaugurated during the early part of next year. Negotiations in connection with this new service have extended over a period of six months.

A contract, it is learned, has been entered into with the Post Office authorities for five years, which provides for the payment of an annual subsidy of £10,000.

The present intention is to inaugurate a tri-weekly service and of the traffic here justifies it, to launch a daily service. Passengers will be transported between the two cities, and the schedule time for the trip will be 4½ hr. In addition to mail and passengers, the new company hopes to carry a certain amount of valuable parcel freight, especially gold consignments to Durban for shipment overseas.

Rome-Constantinople Service

Proposals are complete for the inauguration and establishment of the Italian airmail service between Rome and Constantinople for which a company has been asked to bid in constantia. It was hoped to start service toward the end of May, the definite date to depend on next June. The Italian Government of Ancona. The landing place at Bayrak Deresi on the west side of the Bosphorus about midway between Gatastapale and the Black Sea is being equipped. A building in the best style of Turkish architecture has been erected at the water front for administration and customs purposes.

Two airplanes recently arrived from Italy and are lying in the roadstead. Lieutenant Commander Locatelli, who has been here in Italian military land, during and after the war, is in Constantinople to take charge of operations. According to the local press, he has been appointed director of the enterprise which bears the name of Società Anonima Aero Roma Italiana.

The route from Rome to Constantinople is to be by way of Athens, with the trip scheduled to last 10 hrs. Departures are to take place three times a week. Flights will, according to recent reports, will be all-Italian 800 ft. by the Savoie type, equipped to carry 10 passengers and 3½ metric tons of merchandise.

Jepson's Aviation Appropriation

The Japanese Bureau of Aeronautics has an appropriation for the present fiscal year of \$475,000. A third of this amount is allocated for subsidies. The balance is to be used on the following projects: The purchase or lease of flying fields at Tokyo, Osaka and Fukuoka; improvements to these fields, including inquiry and establishing night land service for Japan between Tokyo, Osaka and Fukuoka. The proposed budget for the coming fiscal year will include provisions for: The establishment of five weather observation stations, to include one at Hakone and one at Sendai; construction facilities in connection with commercial lines; and the establishment of four aerial ocean liners.

Czechoslovakia Manufactures Planes

The Ministry of Public Works of the Czechoslovak Republic states that in the next future it will initiate eight large passenger planes. The planes have been ordered from the military airplane factory at Prague and from the Skoda works and are designed for passenger traffic on State Lines. They are capable of accommodating eight passengers and are equipped with two 400 hp engines of the Lorraine-Dietrich type.

Proposed Argentine Aviation Appropriation

The Argentine Congress now has under discussion a bill appropriating the sum of 2,536,000 Argentine pesos (the Argentine peso was worth 25¢ U.S. coin) in currency in June, 1927, for further aviation activities in that republic.

The individual items making up this bill include the following: For training school, 400,000 pesos; for school's shops, 100,000 pesos; for airplane material and repairs to same, 300,000 pesos; for training courses, 500,000 pesos; for buildings, one, 450,000 pesos; for land, water, etc., 400,000 pesos.

Aviation Subsidy Bill Passed in Netherlands

A subsidy bill on behalf of commercial aviation in the Netherlands was passed by the First Chamber on June 29, 1927. It was approved by the Second Chamber of Parliament on June 26, 1927. The bill provides for the inauguration of the Dutch Aviation Co. During the year 1928, a total number of 365 passengers were transported by airplane, in 1929 this figure increased to 5,000 while 1930 reached 6,275. The bill passed the First Chamber without debate.

German-Czechoslovak Air Agreement Ratified

Under the terms of an agreement entered into between Germany and Czechoslovakia in 1925 as a result of the treaty and along the lines of the aerial agreements made with France and Belgium. In the agreement it is provided that the installation and operation of regular air routes by an aviation company of the one party take as the territory of the other party shall be subject to a special arrangement between the two contracting parties. It is also provided that, in the event, in theory, an order between the two countries shall be issued jointly by an aviation company composed of each of the two parties. If this is found to be impracticable for a specific line, permission for compensation shall be made when another air route is established. These stipulations also, as in the French and Italian agreements, shall, from private civil airplanes, state-owned airplanes, and for military, customs or police purposes. The same most shall efforts come into force with the exchange of ratifications, but has been practically effective since March.

Aviation in Turkey

Trade from foreign lines there is no commercial aviation in Turkey. Reports published from time to time about the establishment of new companies, about the activities of the Turkish Aviation League, about new purchases of planes in Europe, etc., deal more or less with military aviation, and the civil air line is practically nothing.

The Turkish Government apparently is desirous of acquiring a number of new air mail units and has purchased two planes on trial order from the Rohrbach Manufacturing Plant, operated by German capital in Copenhagen. Representatives of Rohrbach, Junkers, Bredt, De Witt, etc., and other aviation plants are actively engaged in trying to secure Government orders.

Tunis-Paris Non-Stop Flight

A non-stop flight from Tunis, North Africa, to Paris was completed on May 30 by Lieutenant Guesard and his co-pilot, a French pilot, equipped with a Lorraine airplane. The plane left Tunis at 4:30 a. m. and landed at Villacoublay, near Paris, at 6:30 p. m. It passed over Rome en route.

U. S. Airway Facilities Increasing

According to Wm. F. MacDonnell, Jr., assistant secretary of commerce for commerce, a survey of the airway facilities in the United States shows that there are 441 airports and intermediate landing fields, and that as a result of cooperative work there now may 1,000 airports and intermediate landing fields will be established in the fall of the current year.

The present 441 fields include 382 municipal, 163 commercial and private airports, 124 Department of Commerce intermediate fields, 265 miscellaneous intermediate fields and 40 state, Navy, and National Guard fields, 1 University, and 1 Agricultural field. By the end of the 1928 fiscal year the Department of Commerce estimates that 1,000 and 1,000 intermediate fields will total approximately 382 municipal and 124 of the present kind. In addition, 80 municipal fields are proposed. Besides these, the Department of Commerce has on record about 3,000 unimproved fields, such as pastures or similar areas throughout the country in which landings and take-offs have been or can be made.

One of the large number of others which established airports was the passage of the Air Commerce Act of 1926, at Dallas, which has contributed a \$40,000 airport and equipped it at a cost of \$727,285. This report has an estimate of money and the most modern airport equipment. Chicago's municipal airport is another example of progress in the right direction. This city has 140 out of a great airport with its multi-directional runway system, complete night lighting, gasoline hangars and other necessary equipment.

On the West Coast, Oakland is constructing an airport on a sheltered island, which will accommodate both land and seaplanes and is only a short distance from the heart of the city. San Francisco likewise is developing a modern air terminal to accommodate traffic from the transcontinental rail

the Pacific Coast system. Sacramento also has made good progress with its new municipal airport.

Further up the coast Portland is using Swan Island for its new airport, which will be equipped in accommodation planes of both land and sea types.

In the South, New Orleans has progressed with the development of Calcasieu Field, which was made available for operations in November, 1926.

In the Midwest, Cleveland has continued to improve its already well-designed airport, paying particular attention to better drainage and adding hangars and new equipment as necessary.

Other cities are pushing ahead with construction, or have voted funds for this work. Schenectady has a commercial airport in which \$126,500 out of stock has been sold. Buffalo has voted \$1,000,000 for a municipal airport. San Diego has been authorized to proceed with the establishment of a large airport for both land and seaplanes. Kansas City has just voted a modern airport within five minutes of the center of the city.

Along the Chicago-Dallas route, Moline, St. Joseph, Waterloo, Ottumwa City, Peoria City, Dubuque, Fort Worth and Dallas have improved their fields and installed night lighting. This is an addition to the Department of Commerce lighting program which calls for the lighting and marking of 1,000 airports and intermediate fields along the routes between cities. Not including the 92 fields taken over from the Post Office, 55 of which fields have been established the past year, 50 more will be opened by November and 55 by June 30, 1928. In addition, license lights have been placed on five airports and are being installed at seven others. These intermediate fields, usually poorly lighted and dark and lighted from dark until dawn, are used by both pilots and others flying over the streams, in case of fuelless and fuelless, or in case of fuelless, for temporary stops.



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fully given by the Wisconsin Aero Club in the program. The meet was sponsored by the Lake Geneva Chapter of Commerce and William Winger's field was used for landing purposes by the large number of planes that were there.

Wausau, Wisconsin County.

The Wisconsin Airways, Inc., is a new company formed here for the purpose of selling airplanes, engine parts, accessories, also to engage in the transportation of passenger freight and express by airplane. Members of the company are Roy Larson, Clarence Larson, and Leonard Larson.

Food de Lac, Wis.

An aviation school, Food de Lac's first, is being established at a new flying field on the Forest course just west of the city by Roy Kenney, Edward Brunet and Matt Baudy, owners of a new Curtiss standard biplane which they assembled here and which made its initial test flight this week.

P. W. Kember will act as instructor at the new aviation school for the present and it was announced that five students have already been enrolled for instruction. In addition to this, the plane will also be used for passenger service and other commercial work in the vicinity of the state.

Oakland, Cal.

The selection by the City of Oakland, Cal., of an airport site within five miles of the city had to be followed by the immediate development to accommodate all forms of aircraft, plans for which are already well under way. The site consists of 600 acres located on Day Farm Island, having a frontage of one mile on San Francisco Bay, and also contains frontage on San Leandro Bay. It has two good areas of highway communication with Oakland and is easily accessible to planes from east, south and north.

Preliminary plans of development provide for the installation of 800 adjoining acres ultimately. This will give the airport a total area of 1,400 acres. For the present, it is planned to improve only the acreage already owned. Numerous hangars are to be erected as well as a moving walk for hydro-aerobically craft. The control of the airport has been placed in the hands of the port commission, which is to be aided by city engineers to convert unimproved areas into improvements, funds being available from harbor bonds.

The purchase of the Oakland airport follows work done by the Airport Commission of the Oakland Chamber of Commerce which made a thorough investigation of possible sites and finally selected that on Day Farm Island as the most desirable. Perked with the results of this survey, the commission was able to convince the city council of the necessity of providing a municipal airport.

Norfolk, Wis.

The Norfolk Daily Herald in a note to be the first Wisconsin newspaper to have been delivered in a plane manufactured in Wisconsin. Copies of the paper were delivered this way to Irma and Frank, Wis., in the "Dawn" a biplane with a 13 H. engine speed, built by E. G. Olson of Yorkville. The plane has just recently completed a 4,000 mi trip through Wisconsin.

Springfield, Mass.

By Charles Moore Cole

Col. Charles A. Lindbergh flew over Springfield July 21 and dropped a message to the mayor. He had been invited to land here but was prevented, largely because of inadequate landing facilities. He needed the cranes of the city several times and flew in front of the municipal buildings to drop the message. A large crowd watched him from bridges, roof tops and parks.

Misses Esther E. Branshaw, D. W. Hartman and A. R. Mauds, of the R. B. News, landed at the commercial field at Langdon July 15 in a Hawk and Vought. They were on the way to Boston where a severe thunder storm forced them to land. Most the exhilaration of starting was put on by the three days they remained here and Harpers in his

Eric's stage a show that has not been seen in the city for a long time. Three fights greatly astonished local aviation enthusiasts and it showed to be a high proof.

The Springfield chapter of the American Society of Mechanical Engineers is making plans to hold an aviation conference here in April at which a large number of airports will be present to discuss local aviation problems. This is expected to be a great aid in giving Springfield's promising position as a future air station in some degree of reality.

Wentfield is now making improvements in the old field and national guard camp ground which has been named the Berens Airport. The field has several times been the scene of air meets and has long been recognized as a favorable location for an airport. It is now being enlarged and hangars will be erected soon. An air meet is planned for next time in August.

Rochester, N. Y.

By John F. Farn

Rochester's dream of a well equipped airport will soon become a reality as announcement was made by city officials that preliminary steps will be taken within the next few days to equip the municipal aviation field, consisting of 210 acres of land in the south-western part of the city just outside of the three mile circle. The field will be filled and graded, and although no definite announcement was made, it is expected that the construction of hangars and towers will be under way within the next sixty days.

The Turbin brothers, Gordon and Gilbert, who are at the head of the North Star Aerial Service, Inc., are building two hangars which they expect to complete early in October. Should the plans progress successfully and with the financial equipment, an application will be made for an approved type certificate and the manufacture of the Turbin monoplane will be undertaken on a large scale.

Meritt E. Bickel, former air mail pilot, has formed and heads the New York and Western Airways, Inc. The incorporation with Thibault one of pilots operates over the Stan-

bridge Field. The company has at the present time one Waco, Cessna and a Standard. A line is planned from New York City to points west, stopping at Albany, Utica, Rochester and Buffalo.

The Rochester Flying Club, the city's youngest aviation organization, scheduled its regular meetings until the reaction period is over. When the regular meetings start the middle of September it will be with a extensive educational program, the officers of the club have announced. Motion pictures will be shown and lectures will be given alternately to familiarize the public with aviation activities, and get its membership in moving Rochester an aviation city.

Through the summer months several members of the Flying Club are based over radio station WGRY every Friday evening in short side talks. Talks have been given by Harold H. Munster and Eric L. Dirks, to be followed by Dr. Joseph D. Loder, president of the organization, and Earl M. Pomeroy.

Stammon, Cal.

By George L. Greer

One instance of this city on working out details for the erection of a stadium is involved and sixty-two feet high is a monument in the Arnold-Thurston Field which looks and called at Clover Field, then a government training and flying field and now a municipal airport. The income memorial, second in size only to Liberty statue in New York, would have a forty-foot base, within which would be a museum devoted to aviation. From this would rise a giant kitchen with arms uplifted and holding aloft a globe to represent the world. This globe would be a bronze, serving as a guide to Clover Field at night. Geoffrey Mays, Jensen and Merrill Gage, sculptor, look residents of this city, report the project has met with immediate endorsement of local police, firemen, fire commissioners and prominent citizens.

Prepared structures only will be permitted on higher class at Clover Field, site immediately of Stammon base announced. Easier draws are cited on this score, every pas-



Progress in aircraft design is a process of evolution. The Burnelli type RB2 demonstrates the practicability of biplanes or monoplanes of all aerial contour combining maximum resistance with maximum accommodation and maneuverability.



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while the pretensions hang around. Despite these restrictions, no doubt on airplanes is necessary, under an situation in this section being intense, no immediate flying conditions can be provided places as they have been for the coming season can provide. Several months of longer at the end of the season to be in the air, also, they will be permitted to go on the "black" current and be confined to single and flying exercises.

One of the most active committees preparing for the 1928 California Hot Air Convention is the one in Santa Monica, Cal. The 18th annual convention, headed by Donald Douglas, with H. H. Hotal, business manager of the Douglas company, as a first lieutenant. What will be all likelihood be the greatest ever held on the Pacific Coast with more than two hundred planes of all types and designs being participated, is planned for Oct. 22. This will enable visitors from all portions of the state to witness flying demonstrations, races, stunts, etc., the most being designed to interest visitors representative of every type of California communities as a whole. It was the hope of the state association to have Colonel Lindbergh as an honor guest on his discovery, sponsored by the California association, will have him in Los Angeles and visit the latter part of September. He will be here to have his visit during the state rally next, however.

Mineral Airport, Cal.

Mineral Airport, situated in the northwest corner of Tehama County, is 4,500 ft. above the waters of the Pacific, 8 mi. from its entrance to the Lassen Volcanic Park, 200 ft. from and parallel to the Lassen Volcanic State Highway and 30 mi. north of the Carlin Airport.

At first, it was hoped to establish the airport near the outlet of Lassen Park but this was not possible. It was then decided that a field at Battle Creek, Yreka, Minner,

offered a splendid site for the construction of an airport. It is 100 ft. above the level of the sea, and is located 1.5 mi. W. 140 ft. N. of the park superintendence, and W. 1.5 mi. W. of the town, is a splendid site for the construction of an airport.

A plan is now under consideration by which the present location of both the National Park and the Forest Service Departments are to be moved to a location about one-half mile west of Mineral, and along the State Highway, just north of the Mineral Airport. This plan is being considered for the reason that the California State Highway Commission proposes to keep the highway open all winter, making this a year-round highway, the altitude being much lower than that of the highway now. This will place Mineral as a winter resort destination.

Mineral is now destined to have a year-round population because of the winter sport opportunities this spot presents. From 1921 the altitude is 4,500 ft., and the highway is a winter long highway and wintered previously. It is now the thousands of people who will visit the Mineral park to see the park entrance is completed.

Boise, Idaho, Field

By Helen Edward Holman

The first commercial airplane to fly from a factory to the Boise airport arrived here July 17. Art L. Walters, who operates the Walton Flying School of Boise, piloted the new plane, a Vee-Tee, from Troy, Ohio. For more than 2000 mi. of the distance he was accompanied by Mrs. Walters, who acted as his co-pilot. The plane, a Vee-Tee, was piloted by W. H. Hotal, business manager of the Douglas company, as a first lieutenant. What will be all likelihood be the greatest ever held on the Pacific Coast with more than two hundred planes of all types and designs being participated, is planned for Oct. 22. This will enable visitors from all portions of the state to witness flying demonstrations, races, stunts, etc., the most being designed to interest visitors representative of every type of California communities as a whole. It was the hope of the state association to have Colonel Lindbergh as an honor guest on his discovery, sponsored by the California association, will have him in Los Angeles and visit the latter part of September. He will be here to have his visit during the state rally next, however.

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